

REMARKS

I. Status Of Claims

Claims 1-38 and 40-48 are pending in the present application. Claims 1, 19, 32, and 40 are amended herein. Claims 3, 4, 6, 20, 21, 33, and 44 are canceled. New Claims 49-54 are added. Therefore, upon entry of this Amendment, Claims 1, 2, 5, 7-19, 22-32, 34-38, 40-43, and 45-54 will be pending. No new matter has been introduced by the present amendment. Reconsideration of the application as amended and based on the arguments set forth hereinbelow is respectfully requested.

II. Claim Objections

Claim 1 stands objected to because of informalities. In particular, the Examiner stated that the phrase "if a free channel" in line 12 of Claim 1 should be changed to "if the free channel". (See page 2, of the Official Action). Claim 1 has been amended as suggested by the Examiner. Therefore, applicants respectfully submit that the objection to Claim 1 should be withdrawn.

III. Claim Rejections Under 35 U.S.C. §102

Claims 1, 2, 5, 9, 15, 19, 22, 26-29, 31, 40-42, 47, and 48 stand rejected by the Examiner under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,937,353 to Fapojuwu (hereinafter, "Fapojuwu"). Further, Claims 32, 35, and 37 stand rejected under 35 U.S.C.

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§102(e) as being anticipated by U.S. Patent Application Publication No. 2001/0033600 to Yang et al. (hereinafter, "Yang"). These rejections are respectfully traversed.

III.A. Claim Rejections Based on Fapojuwo

Upon careful consideration and review of Fapojuwo, applicants respectfully submit that Fapojuwo does not disclose each and every element of the presently claimed subject matter and therefore does not anticipate the presently claimed subject matter. In particular, Fapojuwo does not disclose each and every element of Claim 1. Claim 1 has been amended as indicated above to more particularly define the claimed subject matter. Claim 1 recites the following elements: (1) constructing a channel convertible set including communication channels of the first base station allocated to active mobile stations moving in a direction away from the first base station; (2) receiving a handoff request from a requesting mobile station having a communication link with the second base station; (3) determining whether a free channel of the first base station not allocated to a mobile station is available for the handoff request; and (4) allocating one of the communication channels in the channel convertible set to the handoff request if the free channel is not available for the handoff request.

Regarding Claim 1, the Examiner stated that Fapojuwo discloses a method and apparatus for controlling allocation of traffic channels. (See page 2, of the Official Action). In particular, the Examiner stated that Fapojuwo discloses "constructing a channel convertible set including communication channels for active mobile stations moving in a direction away from the first base station" at the Abstract, Figures 1 and 2, and column 1, line 60, to column 2, line 14;

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“receiving a handoff request from a requesting mobile station having a communication link with the second base station” at Figures 1 and 2, and elements 1, 20, and 26; “determining whether a free channel is available for the handoff request” at the Abstract, Figures 3 and 4, and blocks 64 and 78; and “if a free channel is not available for the handoff request”, allocating one of the communication channels in the channel convertible set to the handoff request” at the Abstract, Figures 3 and 4, and blocks 78, 84, and 86. (See pages 2 and 3, of the Official Action).

The Abstract of Fapojuwu discloses methods and apparatus for controlling allocation of traffic channels in a telecommunication network having macrocells and microcells within the macrocells. A macrocell traffic channel is allocated to a request for a traffic channel only when no suitable traffic channel is available, a suitable macrocell channel is available, and the requested microcell traffic channel is requested to implement a microcell to microcell handoff. (Abstract of Fapojuwu). Allocation of the macrocell traffic channel may further be conditional on a grade of service in the macrocell being deemed acceptable. (Abstract of Fapojuwu). Column 1, line 60, to column 2, line 14, of Fapojuwu discloses the transfer or “handoff” of terminals moving between microcells. The Abstract of Fapojuwu, however, does not disclose the Claim 1 elements of (1) constructing a channel convertible set including communication channels of the first base station allocated to active mobile stations moving in a direction away from the first base station; and (2) allocating one of the communication channels in the channel convertible set to a handoff request from a requesting mobile station if a free channel is not available.

Further, column 1, line 60, to column 2, line 14, of Fapojuwu discloses changing the assignment of a communication channel to another base station if the quality of a radio link

drops below a predefined level or the terminal moves between cells. Further, in this portion of Fapojuwu, Fapojuwu discloses the handoff of a call connection to a free channel. However, this portion of Fapojuwu does not disclose the Claim 1 elements of (1) constructing a channel convertible set including communication channels of the first base station allocated to active mobile stations moving in a direction away from the first base station; and (2) allocating one of the communication channels in the channel convertible set to a handoff request from a requesting mobile station if a free channel of the first base station is not available.

Referring to Figures 1 and 2 of Fapojuwu, Fapojuwu discloses handoff of a mobile station **26** between microcell **40** and microcell **38** when mobile station **26** moves between the microcells. (See column 5, lines 38-52, of Fapojuwu). A free channel may be borrowed from umbrella macrocell **34** in order to prevent a call from being dropped. (See column 5, lines 52-54, of Fapojuwu). A local channel manager (LCM) **50** and a global channel manager (GCM) **52** manage calls to provide balance between microcell and macrocell grades of service. (See column 5, line 60, to column 6, line 13, of Fapojuwu). In particular, GCM **52** manages the allocation of macroBS channels to macrocells by sending a macroBS channel assignment request message to a macroBSC **10** when appropriate. (See column 6, lines 14-20, of Fapojuwu). Figures 1 and 2 of Fapojuwu and the corresponding description do not disclose the Claim 1 elements of (1) constructing a channel convertible set including communication channels of the first base station allocated to active mobile stations moving in a direction away from the first base station; and (2) allocating one of the communication channels in the channel convertible set to a handoff request from a requesting mobile station if a free channel of the first

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base station is not available. In contrast, this portion of Fapojuwu discloses allocating a free channel of a macrocell when a mobile terminal requests handoff from one microcell to another. In marked contrast, Claim 1 requires allocating a free channel or a channel of a channel convertible set from one base station when a handoff request is made of the base station. Claim 1 has been amended to more particularly define this distinction.

Figure 3 of Fapojuwu discloses a channel allocation algorithm used by an LCM. (See column 6, lines 21 and 22, of Fapojuwu). The LCM determines whether there is a free channel at the microcell base station (block 64). (See column 6, lines 22-25, of Fapojuwu). If a free channel is available, it is allocated to the incoming call. (See column 6, lines 29, of Fapojuwu). If a free channel is unavailable at the microcell base station and the request is for microcell-to-microcell, a channel assignment request is sent for a macrocell. (See column 6, lines 29-44, of Fapojuwu). Figure 3 of Fapojuwu and the corresponding description do not disclose the Claim 1 elements of (1) constructing a channel convertible set including communication channels of the first base station allocated to active mobile stations moving in a direction away from the first base station; and (2) allocating one of the communication channels in the channel convertible set to a handoff request from a requesting mobile station if a free channel of the first base station is not available. In contrast, this portion of Fapojuwu discloses sending a channel assignment request to a macrocell if a free channel is unavailable at a microcell. In marked contrast, Claim 1 requires allocating a free channel or a channel of a channel convertible set from one base station when a handoff request is made of the base station.

Figure 4 of Fapojuwu discloses a channel allocation algorithm used by a GCM. (See column 6, lines 45 and 46, of Fapojuwu). Upon start up, GCM determines whether a free channel is available at the macrocell base station. (See column 6, lines 23-25, of Fapojuwu). If a free channel is not available, a channel of the macrocell base station is not assigned. If a free channel is available, the free channel may be allocated depending on the number of macrocell channels assigned to the microcell associated with the mobile terminal. (See column 6, line 50, to column 7, line 29, of Fapojuwu). Figure 4 of Fapojuwu and the corresponding description do not disclose the Claim 1 elements of (1) constructing a channel convertible set including communication channels of the first base station allocated to active mobile stations moving in a direction away from the first base station; and (2) allocating one of the communication channels in the channel convertible set to a handoff request from a requesting mobile station if a free channel of the first base station is not available. In contrast, this portion of Fapojuwu discloses assigning an available free channel of a macrocell base station to a mobile terminal moving between microcells. In marked contrast, Claim 1 requires allocating a free channel or a channel of a channel convertible set from one base station when a handoff request is made of the base station.

Summarily, Fapojuwu teaches allocating available free channels of a macrocell base station to a mobile terminal moving between two microcells. There is no disclosure of the Claim 1 requirement of allocating a free channel or a channel of a channel convertible set from one base station when a handoff request is made of the base station. Accordingly, applicants respectfully submit that, in view of the above amendments and remarks, the cited reference does

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not disclose each and every element of Claim 1 and applicants respectfully request that the rejection of Claim 1 under 35 U.S.C. § 102(b) be withdrawn and the claim allowed at this time. Additionally, applicant respectfully requests that the rejection of Claims 2, 5, 9, and 15 under 35 U.S.C. §102(b) be withdrawn and the claims allowed at this time because the claims are believed to be patentably distinguished based on their dependency on Claim 1.

Regarding Claim 19, Fapojuwu does not disclose each and every element of Claim 19. Claim 19 has been amended as indicated above to more particularly define the claimed subject matter. Amended Claim 19 recites a method for allocating a communication channel of a first base station from a first mobile station located in a handoff area and having an active communication link with the first base station to a second mobile station requesting handoff. Further, Claim 19 recites the following elements: (1) estimating the mobility of the first mobile station with respect to the first base station; (2) receiving a handoff request from the second mobile station; and (3) in response to determining that the first mobile station is moving in a direction away from the first base station, converting the communication channel from the first mobile station to the second mobile station.

The Examiner used the same contentions to reject both Claims 1 and 19. (See pages 2 and 3, of the Official Action). Summarily, as set forth above, Fapojuwu teaches allocating available free channels of a macrocell base station to a mobile terminal moving between two microcells. Fapojuwu does not disclose the Claim 19 requirements of (1) receiving a handoff request from a second mobile station; and (2) converting the communication channel from the first mobile station to the second mobile station in response to determining that the first mobile

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station is moving in a direction away from the base station and receiving the handoff request from the second mobile station. Thus, Claim 19 recites converting a channel of one base station from a first mobile station to a second mobile station. Fapojowo provides no such disclosure.

Accordingly, applicants respectfully submit that, in view of the above amendments and remarks, the cited reference does not disclose each and every element of Claim 19 and applicants respectfully request that the rejection of Claim 19 under 35 U.S.C. § 102(b) be withdrawn and the claim allowed at this time. Additionally, applicant respectfully requests that the rejection of Claims 22, 26-29, and 31 under 35 U.S.C. § 102(b) be withdrawn and the claims allowed at this time because the claims are believed to be patentably distinguished based on their dependency on Claim 19.

Regarding Claim 40, Fapojowo does not disclose each and every element of Claim 40. Claim 40 recites a system for allocating communication channels in a mobile communications network. Further, Claim 40 recites the following elements: (1) a mobility estimator for estimating the relative mobility of mobile stations with respect to a base station; (2) a channel convertible set manager for generating a channel convertible set including communication channels of the base station for active mobile stations that are determined to be moving away from or stationary with respect to the base station based on mobility estimates generated by the mobility estimator; and (3) a channel allocator for receiving requests for handoff calls to the base station and for allocating channels from the channel convertible set for the handoff calls to the base station.

The Examiner used the same contentions to reject both Claims 1 and 40. (See pages 2 and 3, of the Official Action). Summarily, as set forth above, Fapojowo teaches allocating

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available free channels of a macrocell base station to a mobile terminal moving between two microcells. Fapojuwu does not disclose the Claim 40 requirements of (1) a channel convertible set manager for generating a channel convertible set including communication channels of a base station for active mobile stations that are determined to be moving away from or stationary with respect to the base station based on mobility estimates generated by the mobility estimator; and (2) a channel allocator for receiving requests to the base station for handoff calls and for allocating channels from the channel convertible set for the handoff calls to the base station. Thus, Claim 40 recites allocating a channel of one base station from a first mobile station to a second mobile station. Fapojuwu provides no such disclosure.

Accordingly, applicants respectfully submit that, in view of the above amendments and remarks, the cited reference does not disclose each and every element of Claim 40 and applicants respectfully request that the rejection of Claim 40 under 35 U.S.C. § 102(b) be withdrawn and the claim allowed at this time. Additionally, applicant respectfully requests that the rejection of Claims 41, 42, 47, and 48 under 35 U.S.C. §102(b) be withdrawn and the claims allowed at this time because the claims are believed to be patentably distinguished based on their dependency on Claim 40.

III.B. Claim Rejections Based on Yang

The Examiner objected to Claim 33 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Original Claim 33 depended from Claim 32. Claim 32 has

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been amended to include the features of canceled Claim 33. Claims 35 and 37 depend from Claim 32. Therefore, it is respectfully submitted that Claims 32, 35, and 37 are in form for formal allowance and applicant respectfully requests same. For these reasons, applicants respectfully requests that the rejection of Claims 35 and 37 under 35 U.S.C. §102(e) be withdrawn and the claims allowed at this time.

IV. Claim Rejections Under 35 U.S.C. §103

Claims 13, 14, and 30 stand rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over Fapojuwu. This rejection is respectfully traversed.

Claims 13 and 14 depend from Claim 1. Therefore, Claims 13 and 14 include the elements of Claim 1. As set forth above, Fapojuwu does not teach allocating a free channel or a channel of a channel convertible set from one base station when a handoff request is made of the base station, as required by Claim 1. Further, applicants urge that Fapojuwu is not believed to suggest these elements of Claim 1. Therefore, applicants respectfully submit that Claims 13 and 14 are not obvious in view of Fapojuwu. Applicants, therefore, respectfully request that the rejection of Claims 13 and 14 under 35 U.S.C. §103(a) be withdrawn and the claims allowed at this time.

Claim 30 depends from Claim 19. Therefore, Claim 30 includes the elements of Claim 19. As set forth above, Fapojuwu does not teach converting a channel of one base station from a first mobile station to a second mobile station, as required by Claim 19. Further, Fapojuwu is not believed to suggest these elements of Claim 19. Therefore, applicants respectfully submit that

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Claim 30 is not obvious in view of Fapojuwu. Applicants, therefore, respectfully request that the rejection of Claim 30 under 35 U.S.C. §103(a) be withdrawn and the claim allowed at this time.

V. Allowable Subject Matter

The Examiner objected to Claims 3, 4, and 6 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Original Claims 3, 4, and 6 depended from Claim 1. New Claim 49 includes the features of original Claims 1, 2, and 3. New Claim 50 includes the features of original Claims 1, 2, and 4. New Claim 51 includes the features of original Claims 1, 5, and 6. Therefore, it is respectfully submitted that Claims 49-51 are in form for formal allowance and applicants respectfully request same.

The Examiner objected to Claims 20 and 21 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Original Claims 20 and 21 depended from Claim 19. New Claim 52 includes the features of original Claims 19 and 20. New Claim 53 includes the features of original Claims 19 and 21. Therefore, it is respectfully submitted that Claims 52 and 53 are in form for formal allowance and applicants respectfully request same.

The Examiner objected to Claim 44 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Original Claim 44 depended from Claim 40. New Claim 54

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includes the features of original Claims 40 and 44. Therefore, it is respectfully submitted that Claim 54 is in form for formal allowance and applicants respectfully request same.

VI. Conclusion

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and such action is earnestly solicited.

If any minor issues should remain outstanding after the Examiner has had an opportunity to study the Amendment and Remarks, it is respectfully requested that the Examiner telephone the undersigned attorney so that all such matters may be resolved and the application placed in condition for allowance without the necessity for another Action and/or Amendment.

DEPOSIT ACCOUNT

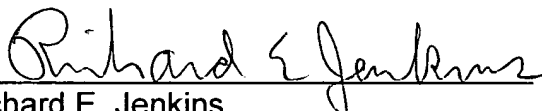
Although it is believed that no fee is due, the Commissioner is hereby authorized to charge any deficiencies of payment associated with the filing of this Response to Deposit Account No. 50-0426.

Respectfully submitted,

JENKINS, WILSON, TAYLOR, & HUNT, P.A.

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